

### What is a Hypothesis?

- A) a tentative explanation
- B) a statement that can be tested
- G) a statement that leads to a prediction
- K) may guide an investigation
- L) used to decide what data to pay attention to and seek
- M) developed from imagination and creativity



### What Is a Scientific Hypothesis?

A hypothesis is a tentative statement that proposes a possible explanation to some phenomenon or event. A useful hypothesis is a testable statement which may include a prediction.

**In other words....**

A hypothesis is a sentence that ( at this time) brings up an idea that explains why or how something happens which may include a prediction

### When Are Hypotheses Used?

The key word is testable. That is, you will perform a test of how two variables might be related. This is when you are doing a real experiment. You are testing variables.

Usually, a hypothesis is based on some previous observation such as noticing that in November many trees undergo color changes in their leaves and the average daily temperatures are dropping. Are these two events connected? How?

### How Are Hypotheses Written?

- Plant growth may be affected by the color of the light.
- Ultra violet light may cause skin cancer.
- Temperature may cause leaves to change color.

All of these are examples of hypotheses because they use the tentative word "may.". However, their form is not particularly useful. Using the word may does not suggest how you would go about proving it.

Good scientists use FORMALIZED HYPOTHESES

### Formalized Hypotheses

Example: If people have a **high exposure to uv light**, then they will have a **higher frequency of skin cancer**.

- Notice that they contain the words , **if** and **then**. In a formalized hypothesis, a relationship is stated. The words in green describe the relationship
- Formalized hypotheses contain two variables. The words in **RED** are the **MV** and the words in **BLUE** are the **RV**

### TWO FORMATS FOR FORMALIZED HYPOTHESES

If the \_(MV) \_(Describe how it will be changed), then the \_(RV) will \_(describe the effect)

As the \_(MV) **increases/decreases** the \_\_\_(RV) **increases/decreases**



### Which of the following are formalized hypotheses?

- 1 If I buy a lottery ticket, then I will win
- 2 If the temperature gets colder, then the plants will grow slower
- 3 If the amount of antifreeze increases, then the temperature at which the mixture freezes will get lower



### Which of the following are formalized hypotheses?

- 1 If I make brass, then it will contain copper and zinc
- 2 If the color of an orange is brighter, then the fruit will be juicier
- 3 If a river moves faster, then there will be more erosion
- 4 If I put seeds in the bird feeder, then birds will come